

## NATO's Joint Air Power Strategy

Dorothee Frank

**NATO has published its new Joint Air Power (JAP) Strategy. After the Alliance's maritime strategy released in 2011 it is the first document providing a blueprint for the development of doctrines and new capabilities, just now in the air power domain.**

The importance of superior air power is stressed in the strategy, since all conflict scenarios will most likely require air dominance. The air forces will be the first responders, the first forces engaging and the enablers of fast transportation just as security for ground troops. But contrary to most conflict scenarios planned after the end of the Cold War, air forces might find themselves in conflicts with equally equipped armed forces, nowadays.

"As air and space overlay the entirety of the globe, the Alliance must be able to employ JAP capabilities in and around all possible terrain and environments. The development, proliferation and integration of adversary ballistic and cruise missiles, advanced layered air defence, cyber and electronic warfare systems will change the dynamics of Alliance air operations, which have more recently been conducted in permissive conditions. Forces will need the ability to operate despite the existence and further proliferation of such capabilities, which may result in threat environments ranging from permissive to highly-contested," NATO's Joint Air Power (JAP) Strategy maintains.

To gain these capabilities air forces need to evolve in several fields. "In the future, the successful use of JAP will be more dependent upon a robust and securely networked environment, including integrated and interoperable networks that will enable JAP to be exploited to the maximum extent. Deployed or remotely operated systems and support operations will use expansive,



(Photo: U.S. Air Force)

networked infrastructure which, in return, need to be included in prevention, detection, resilience, recovery and defence from all forms of cyber-attack. The protection of the network will become as important as the protection of the platform. Forces will also need to protect against manipulation of data and information, and should be able to validate and verify data to ensure it is accurate, reliable, and derived from trusted sources," the authors write. "The ability to command and control JAP, based on human capacity that is augmented and assisted by information technology, is a requisite capability to ensure the level of flexibility and agility necessary for effective JAP employment. Future networks must support the collection, processing and distribution of significant amounts of

data to facilitate timely command and control of JAP." In order to achieve this some national agreements need to be made. "This implies that the lines-of-communications should be globally monitored and secured over cyber, land, sea and in the air. Setting up transit, base and port access agreements, leveraging national transportation networks, and enhancing the capability to transition personnel and materiel between multiple-modes of transportation will be critical to the fulfilment of military objectives. Emerging technology gives the Alliance the option to consider the required logistics footprint as well as leverage automation for increased speed of logistics operations."

But since most highly sophisticated systems – especially planes and fighters inclu-

ding their network capabilities – are also more costly than those in former times, the strategy recommends a mix of high performance and more budget air capabilities. “Due to the through-life-cycle system costs of modern capabilities, as well as the increasing challenges to the security of global supply chains, innovative logistics and procurement capabilities will need to be developed. However, even though NATO leverages technology and develops a smaller and more cost effective footprint, it will be essential to account for mass to ensure sufficient capacity remains to execute all roles of JAP. With respect to the development of medium to long-term capabilities, a subtle and balanced approach between quantity and quality should be adopted,” the strategy states.

This would include the use of unmanned systems instead of manned together with the advantages of learning machines, since artificial intelligence only has to be trained

once – and the knowledge can be multiplied to other machines of the same type without additional learning – instead of every single time for every single human, who will only be able to work for 10 to 20 years as a pilot. “Advances in machine learning, human machine interfaces, and data clouds, all offer the potential to enable the evolution of JAP across an information centric, multi-domain construct. Machine learning provides significant potential savings over the human learning process in terms of cost, speed and effectiveness. The improved human machine interface and use of data clouds offer the potential for capabilities comprising mixed forces of manned and unmanned systems. JAP should continue to exploit potential lower cost capabilities such as directed energy in support of counter-air operations and unmanned and/or autonomous systems across all core roles. Striving to maintain technological advantage can mitigate risk

through the accurate delivery of effects. However, when leveraging advanced technology, sufficient quantity of assets, including low technology such as swarming drones, must be maintained to execute all roles of JAP.”

But since the air dominance is such a vital aspect of modern warfare, the strategy also warns that enemies will most likely try to reduce the use of this power, especially through misinformation. “Adversaries, especially those in the asymmetric environment, are acutely aware of the impact of air power which is often essential for success. Therefore, limiting its use will be a central element of adversarial information operations; notably, this will include claims of civilian casualties, or the exploitation of events involving civilian casualties.” The internet might be the weapon of choice for spreading these “news” into the heads of the people.

[www.nato.int](http://www.nato.int)



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## Technology

### Radar For The U.S. Mission Equipment Package

(df) RADA Electronic Industries announced that its Multi-Mission Hemispheric Radar (MHR) has been down-selected as part of the Leonardo DRS Mission Equipment Package (MEP) solution for the U.S. Army's Initial Maneuver-Short Range Air Defense (IM-SHORAD) capability. According to RADA DRS is in negotiations with the U.S.

Army for this prototype contract which should be awarded in August 2018.

MHR radar integrated on the Stryker A1 platform provides 360 degree aerial surveillance to detect and track UAS, rotary wing and fixed wing threats. Each IM-SHORAD MEP includes four MHR radars to provide persistent surveillance, execute at the short-halt and operate on-the-move. The IM-SHORAD prototype might be delivered



in early 2019. Nine prototype systems will be tested in order to make a decision for more than 140 systems beginning in 2020.

[www.rada.com](http://www.rada.com)

### Trophy On U.S. Abrams Tanks

(df) Leonardo DRS announced that it has been awarded a contract worth \$193 million to deliver their Trophy active protection systems to the U.S. Army. Trophy will be installed on the Abrams tanks in support of immediate operational requirements. Developed by long-time partner Rafael Advanced Defense Systems (Israel) and currently fielding some 1,000 systems to all major Israeli ground combat platforms, Trophy provides combat-proven protection against anti-armour rocket and missile threats.

"Leonardo DRS is proud to be a part of this important effort to bring life-saving technology to our warfighters, and we are actively investing to ensure Trophy provides a solid, American-made foundation for

the Army's coming Vehicle Protection Suite program," said Aaron Hankins, Vice President and General Manager of the Leonardo DRS Land Systems division. "This award is the culmination of several years of hard work by a strong, bi-national government/industry team to protect our warfighters and address a critical capability gap in our armored formations."

"Rafael has provided protection solutions to U.S. service members for over two decades via lifesaving passive and reactive armor on vehicles such as Bradley, Stryker and AAV7. We are excited to continue to do so with Trophy" added Moshe Elazar, Executive Vice President and Head of Rafael's Land and Naval Division. "The majority of Trophy components are manufactured by the American defence industry and we



(Photo: Leonardo)

are excited by the opportunity to increase manufacturing in the U.S., including for Israeli systems, as the U.S. acquires additional systems."

[www.drs.com](http://www.drs.com)

[www.rafael.co.il](http://www.rafael.co.il)

### Iveco Defence Vehicles to Deliver Amphibious Platform

(cl) Iveco Defence Vehicles, a CNH Industrial subsidiary specialised in the construction of protected and armoured vehicles, will provide its 8x8 amphibious armoured platform design, core components and services, to support BAE Systems in the frame of their contract with the U.S. Marine Corps.

The ACV is an advanced 8x8 open ocean-capable vehicle that is equipped with a new six-cylinder, 700hp engine, which provides a significant power increase over



(Photo: Iveco)

the current Assault Amphibious Vehicle. The vehicle delivers best-in-class mobility in all terrain and has a suspended interior seat structure for 13 embarked Marines, blast-mitigating positions for a crew of three, and improved survivability and force protection.

Iveco Defence Vehicles and BAE Systems teamed in the very early phases of this programme to offer their solution to the U.S. Marines for their ACV requirement. As a result of this successful teaming relationship, the first 16 prototypes were delivered to the Marine Corps in 2017. Over the past 15 months, the companies have supported the US Marine Corps' Developmental Testing and Operational Assessment of these vehicles the performance of which achieved best results for water operations, land operations, carry/payload, and protection.

[www.ivecodefencevehicles.com](http://www.ivecodefencevehicles.com)

### Raytheon Wins Laser Development Contract

(df) Raytheon has won the a \$10 million U.S. Army's High Energy Laser Tactical Vehicle Demonstration (HEL TVD) programme contract. Within this contract the company will develop a 100 kW class laser weapon system preliminary design for integration onboard the family of medium tactical vehicles. Upon HEL TVD Program Option

Two completion, the one supplier will be awarded a system development and demonstration contract by the Army to build and integrate a weapon system on the family of medium tactical vehicles. A system, development and demonstration contract decision, valued at nearly \$130 million, is expected in early 2019.

"The beauty of this system is that it's self-contained," said Roy Azevedo, Vice

President of Intelligence, Reconnaissance and Surveillance Systems at Raytheon's Space and Airborne Systems business unit. "Multi-spectral targeting sensors, fiber-combined lasers, power and thermal sub-systems are incorporated in a single package. This system is being designed to knock out rockets, artillery or mortar fire, or small drones."

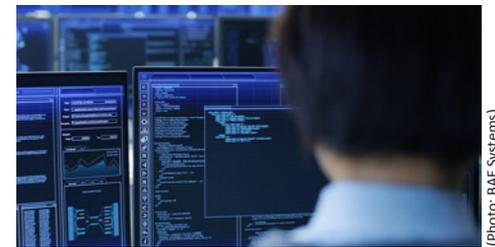
[www.raytheon.com](http://www.raytheon.com)

### Software Model For Conflict Planning

(df) The U.S. Defense Advanced Research Projects Agency (DARPA) has awarded a \$4.2 million Phase 1 contract to BAE Systems to develop a software that will aid military planners in understanding and addressing the complex dynamics that drive conflicts around the world. This Causal Exploration of Complex Operational Environments programme seeks to develop technology to model different political, ter-

ritorial, and economic tensions that often lead to conflicts, helping planners to avoid unexpected outcomes.

"Military planners often conduct manual research and use limited modelling tools to generate models and evaluate conflict situations, which are extremely time consuming and labor intensive," said Chris Eisenbies, product line director of the Autonomy, Controls, and Estimation group at BAE Systems. "To break down these barriers, CONTEXTS will use reasoning al-



(Photo: BAE Systems)

gorithms and simulations with the goal to give planners a quicker and deeper understanding of conflicts to help avoid unexpected and counterintuitive outcomes."

[www.baesystems.com](http://www.baesystems.com)

### Connecting Base Stations

(df) ETELM has announced that it successfully connected its 4GLinked TETRA e-TBS and LTE e-LBS base stations to many other vendors at the second Mission Critical Push-to-Talk (MCPTT) Plugtests. According to the company the e-TBS base station, which

connects directly to an LTE EPC core via the S1 interface, allowed direct optimized communications between standard 4G LTE subscribers and TETRA subscribers.

"We are thrilled that our TETRA e-TBS and LTE e-LBS base stations performed so well at the MCPTT Plugtests interconnecting

with many EPC cores, eMBMS Gateways and MCPTT/MCDATA servers," said Nicolas Hauswald, Sales & Marketing Director at ETELM. "Today was the first time that the interoperability of MCDATA has been tested."

[www.etelm.fr](http://www.etelm.fr)

### Colombian Air Defence System

(df) The Colombian Corporación de Alta Tecnología para la Defensa (High-Tech Defense Corporation – CODALTEC) and Indra company will jointly develop a "cutting-edge air defence system that will meet the Colombian requirements and potentially those of other countries in the region", the company announced. "It is the first system with these characteristics developed in Latin America, as a result of the success of the collaboration between Indra and CODALTEC."

To achieve this goal Indra and CODALTEC



have extended their already existing collaboration in the field of radars (resulting in TADER (Tactical Air Defense Radar)) to the development of command and control systems, one of the core capabilities of Indra. This system will receive the data provided by different sensors and merge it to present a comprehensive and

integrated vision of the real scenario for military officers. Therefore, the system will be capable of immediately detecting any risk and deploying the necessary actions to neutralize it.

The TADER radar will be a key element of the sensor network in the future CODALTEC air defence system. In addition, the system will be fully interoperable with any other type of subsystem, so it can incorporate new capabilities as they appear in the future or integrate the equipment used by the Armed Forces of other countries.

[www.codaltec.com](http://www.codaltec.com)

[www.indracompany.com](http://www.indracompany.com)

## Fire Support for Danish Army's New Artillery Systems

(df) Systematic has been contracted by the Danish Defence Acquisition and Logistics Organisation (DALO) to deliver a new fire support capability for the Danish Army's latest artillery systems. Under the contract, Systematic will deliver a fieldable solution in the 2020 timeframe, with integration and firing trials scheduled for 2019. This new capability will be deployed on the Danish Army's new Caesar self-propelled howitzers and Cardom 10 mortars, which will be integrated on Piranha V armoured vehicles. The new function builds on the Fire Support Module developed for Systematic's SitaWare Headquarters solution

and will significantly shorten the sensor-to-shooter engagement cycle, among other benefits.

The new capability enables fire mission data – first generated by a forward observer and passed to the gun crew via a joint fires cell or similar element – to be digitally transferred into an artillery fire-control system (FCS), where the ballistic calculations are made. Even though it has a high level of automation there will always be operator verification before the mission is carried out, the company said.

“The threat posed by counter-battery fire on the modern battlefield necessitates the ability for artillery systems to ‘shoot-and-scoot’ while maintaining accurate target-



(Photo: U.S. Army)

ing,” explained Hans Jørgen Bohlbro, Systematic's Vice President, Defence Product Management, “One of the benefits of the new function is the ability for artillery systems to quickly conduct fire missions and redeploy before they can be engaged by enemy fires.”

[www.systematic.com](http://www.systematic.com)

## Hungary Orders 20 H145Ms

(ck) As part of the military modernisation programme “Zrinyi 2026” the Hungarian Ministry of Defence has ordered 20 H145M military helicopters equipped with the HFORCE weapon management system. Airbus will also provide an extensive training and support package. Last year Hungary acquired two Airbus A319 military troop transporters.

With a maximum take-off weight of 3.7 tonnes, the H145M can be used for troop transport, surveillance, air rescue, armed reconnaissance and medical evacuation. The Hungarian fleet will be equipped with



(Photo: Airbus)

a fast roping system, high performance camera, fire support equipment, ballistic protection as well as an electronic countermeasure system to support the most demanding operational requirements. Airbus' HFORCE system will allow Hungary to equip and operate their aircraft with bal-

listic or guided air-to-ground and air-to-air weapons.

The H145M is a tried-and-tested light twin-engine helicopter that was first delivered to the German Armed Forces in 2015 and has since been ordered by Thailand and the Republic of Serbia. Powered by two Safran ARRIEL 2E engines, the H145M is the quietest helicopter in its class and is equipped with full authority digital engine control (FADEC) and the HELIONIX digital avionics suite. It includes a high performance 4-axis autopilot, increasing safety and reducing pilot workload.

[www.airbus.com](http://www.airbus.com)

## Military RAMSIS Digital Manikin

(df) Human Solutions has adapted their RAMSIS digital manikin to meet military needs. RAMSIS is a digital manikin used worldwide by car manufacturers for the optimal ergonomic design of vehicle interiors. It can also enter and exit a vehicle in full combat gear, equipped with the most important, up-to-date army equipment, the company announced. This provides vehicle designers with information on the ergonomic requirements of the occupants at an early stage of development and therefore leads to shorter development ti-

mes and reduced costs for late modifications to the vehicle.

“Ergonomics simulation with RAMSIS Defense provides vehicle designers with the practical relevance they need to precisely analyse and design functionality in the vehicle,” says Anton Preiß, Director Mobility at Human Solutions. “Our manikin can be realistically equipped with protective clothing and equipment. This means that posture, force and consequently the analysis results correspond to actual use.”

This military RAMSIS was designed in close cooperation between Human Solutions

and the German Armed Forces with the core being the integrated equipment library. All important equipment of German soldiers such as combat jacket, boots, protective vest, helmet and the newly-introduced electronic back were digitised with 3D scanners and integrated into the library. The RAMSIS manikin can therefore be equipped as required to suit the intended use.

[www.human-solutions.com](http://www.human-solutions.com)



### Bahrain Buys F-16 Block 70

(df) Lockheed Martin received a \$1.12 billion contract from the U.S. Government to produce 16 new F-16 Block 70 aircraft for the Royal Bahraini Air Force. The Kingdom of Bahrain is the first customer to procure the F-16 Block 70, the newest and most advanced F-16 production configuration, the company stated.

The F-16 Block 70 features advanced avionics, a proven Active Electronically Scanned Array radar, a modernized cockpit, advanced weapons, conformal fuel tanks, an automatic ground collision avoidance system, an advanced engine and an industry-leading extended structural service



(Photo: Lockheed Martin)

life of 12,000 hours. To date, 4,604 F-16s have been procured by 28 customers around the world. Approximately 3,000 operational F-16s are flying today with 25 leading air forces, including the U.S. Air Force.

Bahrain will also benefit from a wide range of possible weapons. In concert with the U.S. Air Force Lockheed Martin has certified more than 3,300 carriage and release configurations for greater than 180 weapon and store types.

“We value our long-standing relationship with the Kingdom of Bahrain and look forward to beginning production activities on their first Block 70 aircraft at our facility in Greenville,” said Susan Ouzts, Vice President of Lockheed Martin’s F-16 Program. “This sale highlights the significant, growing demand we see for new production F-16s around the globe.”

[www.lockheedmartin.com](http://www.lockheedmartin.com)

### Thailand Procures IRIS-T Missiles

(ck) Diehl Defence signed a contract for the supply of short range IRIS-T air-to-air missiles (InfraRed Imaging System – Tail/Thrust Vector Controlled) to Thailand. As early as 2011, the Royal Thai Airforce opted for the European short-range missile to arm their GRIPEN and later also their F-16 fighter aircraft. In addition, the integration of the missile into the F-5 fleet is planned as part of the new procurement, so that IRIS-T will now also become the standard weaponry in the Thai Air Force.

IRIS-T is one of the world’s most modern short-range air-to-air missiles. In addition to defeating enemy fighter aircraft, self defence capability against attacking air-to-air or ground-to-air missiles is provided by IRIS-T. Even attacks from behind can be successfully fended off by the pilot with IRIS-T without having to change the course. IRIS-T was developed and procured by Germany, Greece, Italy, Norway, Spain, and Sweden as the successor to the aging SIDEWINDER missiles. Series production began in 2005 and other user countries



(Photo: Diehl Defence)

include Austria, Saudi Arabia, South Africa and Thailand. As a multi-purpose weapon, IRIS-T is also used as a surface-to-air missile in a ground-based air defence role.

[www.diehl-defence.de](http://www.diehl-defence.de)

### Milestone C For JAGM

(df) Lockheed Martin announced that its Joint Air-to-Ground Missile (JAGM) system has successfully passed its Defense Acquisition Board review and therefore achieved milestone C.

“The signed Acquisition Decision Memorandum approves the JAGM system to enter into Low-Rate Initial Production (LRIP),” the company said. “JAGM flight tests, including ten Limited User Test flights, were completed across the performance envelope and target requirements over a period of months leading up to the successful milestone C decision. The test results demonstrated the system’s combat effectiveness and technical maturity.



(Photo: Lockheed Martin)

Additionally, the programme successfully conducted supplier and prime contractor production readiness reviews establishing the programme’s readiness to move into LRIP.”

JAGM missile is the successor of the established Hellfire Romeo and Hellfire Longbow missiles. It features a multi-mode guidance

section and a multimode seeker which combines improved semi-active laser and millimeter wave radar sensors.

According to the company the U.S. Army and U.S. Navy awarded Lockheed Martin a 24-month contract for the Engineering and Manufacturing Development (EMD) phase of the JAGM programme which included JAGM production, test qualification and integration on the AH-64E Apache and AH-1Z Viper attack helicopters. The EMD phase also established an initial low-rate manufacturing capability in support of three follow-on LRIP options, with U.S. Army Initial Operational Capability expected early 2019.

[www.lockheedmartin.com](http://www.lockheedmartin.com)

## Australias New Frigates

(df) Australia is investing over €22 billion in anti-submarine warfare frigates as part of its “SEA 5000” programme to modernise its navy. BAE Systems won the corresponding competition. The winning model GLOBAL COMBAT SHIP – AUSTRALIA is based on the BAE Systems TYPE 26 frigate that the company is currently building for the British Navy in Glasgow. However, the nine Australian frigates are being built by ASC Shipbuilding (Australian state enterprise) in Adelaide, Australia.

The frigates will serve in the Australian Navy as HUNTER class and should be able

to carry out a variety of missions independently or as part of units with long range and sea endurance. In addition to the primary mission – anti-submarine warfare – the frigates are also to receive capabilities or modules for scenarios such as humanitarian aid or disaster response. Special features are the CEA phased array radar developed in Australia and the use of the American Aegis system, which is equipped with an interface specially developed by Saab Australia.

According to the Australian Navy, the HUNTER class will be one of the most powerful warships in the world.



(Graphic: BAE Systems)

The contract to build the HUNTER class is expected to come into force before the end of this year, production could then start in 2020.

[www.asc.com.au](http://www.asc.com.au)

[www.baesystems.com](http://www.baesystems.com)

## Stable USV Platform For Harsh Sea Conditions

(df) Al Seer Marine (UAE) has announced the signature of a cooperation agreement with Iceland-based company Rafnar in order to convert Rafnar’s Embla Rigid Inflatable Boat (RIB) into a manned and unmanned surface vessel (USV). The companies aim to create a very stable USV platform, since Embla already earned its reputation when it crossed the North Atlantic from Iceland to Gothenburg unsupported, tackling up to 6-metre waves over a 1,357 nautical mile distance.



(Graphic: Rafnar)

Rafnar and Al Seer Marine have both developed their individual proprietary technologies and seen multiple opportunities in working together, both companies stated at the ceremony. Al Seer Marine are seeking to further strengthen its product portfolio through the application of Rafnar’s other RIB, the ÖK Hull.

“We are excited to be able to unman Rafnar’s Embla, a great starting point. Adding the ÖK Hull to our portfolio of vessels ensures we deliver the most stable seakeeping platforms for the most extreme marine environments,” said Lee Drinkwater, Head of Business Development & Strategy at Al Seer Marine. Björn Jónsson, Managing Director, Rafnar, added: “I believe that this cooperation is an excellent example of the whole being greater than the sum of its parts.”

<https://asmr.ae>

[www.rafnar.is](http://www.rafnar.is)

## Six Damen Patrol Vessels For Dutch Police

(ck) The Dutch Police has ordered six patrol vessels from Damen Shipyards for its ‘Zeehavenpolitie’ and ‘Landelijke Eenheid’ units. Three of the new vessels are seagoing (the STAN PATROL 2506) and the other three are for the inland waterways (the STAN PATROL 2005).

All six will be built at Damen’s headquarters in Gorinchem in the Netherlands, and are due to be delivered between 2019-2021. Damen won the contract following an all-European tender. The patrol vessels, built from aluminium with a composite superstructure, are lightweight, have less resistance, higher performance and lo-

wer fuel consumption. The patrol vessels comply with the new environmental rules (Euro Stage V for inland vessels) for cleaner exhaust emissions, which are being introduced in 2020. In 2020, vessels have to have after-treatment installations on board; the new patrol ships will already have this equipment.

Another addition is the installation of a slipway on the aft of the seagoing STAN PATROL 2506 from which the RIBs can be launched. Previously, patrol vessels of this size would have to use a crane and a davit. The slipway is operationally safer, more reliable and the launch of the RIB is much faster. RIBs can be launched in higher wind speeds for example. The slipway also ma-



kes it easier to retrieve the vessel. The wheelhouse has been customised and the vessels will be equipped with night vision technology.

The six will replace existing vessels and be deployed in the North Sea and on Dutch waterways, and in the ports of Vlissingen, IJmuiden and Rotterdam.

[www.damen.com](http://www.damen.com)

### Unexploded Ordnance Missions

(df) Aquabotix has been granted an award of \$78,000 in non-dilutive hardware integration funding from the United States Navy's Naval Undersea Warfare Center (NUWC) to deliver a solution geared towards unexploded ordnance missions for the United States Navy. After delivery, this solution will be incorporated into Aquabotix's SwarmDiver or other unmanned underwater vehicles to support unexploded ordnance detection missions by the United States Navy and allied forces.

Unexploded ordnance of past conflicts still pose a high risk of detonation. A Texas A&M University study estimated there are over 13.6 million kg of ordnance just in the Gulf of Mexico alone. To avoid accidental detonation, mission support is required to detect, locate, and neutralise them. "Because of the low cost of Aquabotix's products, we are able to provide a solution to our navy customers at a 'disposables' price point", the company stated. This initial funding from the Navy supports continued SwarmDiver product develop-



(Photo: Aquabotix)

ment that is tailored to provide a solution for a sizable and currently otherwise unaddressed governmental need.

[www.aquabotix.com](http://www.aquabotix.com)

### Camcopter Successfully Tested By Belgian Navy

(df) Schiebel has successfully demonstrated the search and rescue as well as maritime surveillance capabilities of the Camcopter S-100 Unmanned Air System (UAS) from June 21 to July 1, 2018 to the Belgian Navy.

"The trials with the S-100 have been very successful and have taught us a lot about the possibilities of such systems and sensors, the ability to operate in Belgian's confined airspace, opportunities for the domain of coastal security and prospects for further developments," said Lt. Commander D. Biermans, who is in charge of



(Photo: Schiebel)

the Belgian Navy's Maritime Tactical UAS (MTUAS) Project Team. "Given the complexity of introducing a MTUAS within the Navy and its impact on the concepts of operation and tactics, this was a first informative step and will be part of a series of tests and experiments with a variety of vehicles and sensors."

These flights were the first S-100 customer demonstration with the recently integrated PT-8 Oceanwatch payload. This wide-area maritime search capability offers a powerful naval patrol capacity and thus solves the challenge of searching for small objects over vast areas. The employed combination of two payloads proved to be an ideal solution for the tested scenarios.

"With its small footprint, exceptional capability and state-of-the-art payloads, the Camcopter S-100 is the perfect platform for maritime and land-based SAR missions," said Hans Georg Schiebel, Chairman of the Schiebel Group.

[www.schiebel.net](http://www.schiebel.net)

### Mexican Long Range Ocean Patrol POLA

(df) The Mexican Navy and Damen Shipyards are working together to build the Long Range Ocean Patrol (POLA (from its initials in Spanish)), that will become the most technologically advanced vessel in Latin America, the company said. POLA will be the Mexican version of the Damen SIGMA 10514, a proven design that has booked successful results internationally. POLA will be 107 metres in length, with a beam of 14 metres. It will be able to sail at speeds of up to 25+ knots and a capacity of more than 20 days at sea.

"This vessel will be capable of carrying out various missions such as safeguarding

Mexican sovereignty, international security cooperation, long range search and rescue operations and humanitarian aid. POLA will allow the Mexican state to increase its surveillance coverage and the protection of Mexican maritime interests beyond the Exclusive Economic Zone," a Damen representative said. "The Mexican Navy took the decision to build two of the six modular sections of the vessel at Damen Schelde Naval Shipbuilding (DSNS) in Vlissingen, the Netherlands. The remaining four modules will be built locally in Mexico. The construction of these modules, along with the integration, will be carried out at a yard that cooperates on this with Damen. In this way, for the most part, the ves-



(Photo: Damen)

sel will be built for Mexico, in Mexico, by Mexicans."

Flagging ceremony of the POLA is planned for November 2018. After this, a full integrated process of setting to work, commissioning, training, tests and trials will continue in 2019.

[www.damen.com](http://www.damen.com)

## Customised Training with the Minsait Cyber Range Platform

(cl) In cooperation with the Carlos III University of Madrid, Minsait, Indra's digital transformation business unit, works to provide personalised training programmes on its Cyber Range platform due to the rising demand for cyber experts protecting advanced societies against cyber attacks. Indra is a technology company operating in the transport and defence market.

The platform has been designed to support individual and group training in techniques related to cyber defence, cyber attacks and forensic analysis. The system will be able to adapt itself to each student in an autonomous way and in real time.

Instructor's or human adversary's intervention will no longer be needed which minimises the required resources. The adversary's action, as defender as well as



(Photo: Indra)

attacker, will be automated by the system, reacting to the student's responses.

The system also will be able to evaluate the student's performance and will provide aid proactively. In addition, it will have tools to automatically compose new exercises based on a catalogue of prior knowledge and the professional's personalised needs. In consequence it will be able to meet the

specific needs of organisations and companies by taking into account the desired level of training, the type of organisation and the area of attack, without losing the practical aspect of mass training.

Minsait offers security guarantees to protect classified content; it

has a private cloud equipped with technical security measures. Cyber Range will be adapted to the NICE framework developed by the United States National Institute of Standards and Technology (U.S. NIST). The platform already has been tested by more than 1,000 cybersecurity professionals from fifty countries.

[www.indracompany.com](http://www.indracompany.com)

## M109 Upgrades With Hybrid Genaircon

(df) INTRACOM Defense Electronics (IDE) has delivered first M109 upgrades with Hybrid Genaircon to the Hellenic Army. Genaircon is a fully integrated power ma-



agement solution for military vehicles and it incorporates a Hybrid Auxiliary Power Unit (HAPU), an advanced Energy Storage System (ESS) and a Vehicle Environmental Control System (VECS), all controlled by an intelligent central Power Management System.

The platform-customisable Hybrid Genaircon is designed to provide extended "True Silent Watch" capability, contributing to increased survivability in field

operations. Genaircon enables prolonged control of the vehicle's thermal and noise traces, introducing a force multiplier in the contemporary doctrine of operations.

Furthermore, according to the company, the system offers significantly reduced fuel consumption and respective maintenance requirements, which increase mission sustainability.

[www.intracomdefense.com](http://www.intracomdefense.com)

## New Battery Conditioner

(df) Lincad announced the launch of its new Armada six-channel battery conditioner. This device manages the state of charge (SoC) of lithium-ion and other battery types, so that they do not reach less than 30% SoC. Charge and discharge functions are controlled by the system software and are largely automatic once initiated by the user through a simple push-button interface.

Apart from just managing it also might prepare batteries for air transport in line with IATA regulations. Armada is powered from



a universal AC mains supply and can be mounted either on a bench or a 19" rack. Its six independent channels carry out the automatic charging and discharging of batteries through battery interface adaptors which are connected via locking military-standard circular connectors. Armada is compatible with IrDA and SMBus

smart batteries as well as those with no communications interface.

"The Armada is the latest in a long line of innovative products developed by Lincad and promises to deliver significant logistical and operational benefits to anyone involved in the transport of lithium-ion and other batteries," said Peter Slade, Lincad's Joint Managing Director. "The use of an Armada system prior to departure and on arrival at the final destination provides the solution for battery transport and management."

[www.lincad.co.uk](http://www.lincad.co.uk)

## Industry & Trade

### Babcock Innovation Zone at UDT 2018

(jh) At this year's Undersea Defence Technology Conference & Exhibition in Glasgow, Scotland, Babcock International had arranged a joint exhibit dubbed "Innovation Zone" where 11 small-business subcontractors (SMEs) could showcase latest achievements and draw attention to their capabilities. The specially commissioned Babcock Innovation Zone provided a break for many of these SMEs into a highly competitive market where cutting edge ideas can be traditionally difficult to uncover. And with the exhibitors deploying specialists in fields from submarine disposal to knowledge management the space provided an ideal networking opportunity. Each company from the Babcock Innovati-

on Zone also presented their designs and concepts to an independent judging panel with the winner of the best innovation presented with a trophy.

The companies taking part in the Babcock Innovation Zone at UDT 2018 were Copenhagen Subsea A/S, pureLiFi, SeaGard, Centre for Marine Biofouling and Corrosion, Rawwater, Olsen Subsea Controls, Nednano, Kahootz, Joost Engines, Inductosense and RS Aqua.

Besides, Babcock took advantage of UDT to showcase as an exhibitor and present in the scope of the conference a number of current topics including launch and recovery, submarine combat systems and platform design systems. Another focus was on virtual reality training as well as the company's plans to deliver non-pressurised



(Photo: Babcock)

submarine escape, rescue, abandonment and survival training for the Royal Navy.

[www.babcockinternational.com](http://www.babcockinternational.com)

## MASTHEAD

### ESD Spotlight

Email newsletter of the magazine  
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### MBDA's New Facility in Bolton

(df) Last week MBDA's new high-tech manufacturing facility in Bolton has been officially opened by Gavin Williamson MP, UK Secretary of State for Defence. The new facility houses some 670 design, engineering and manufacturing employees and is being used for the production of inert missile equipment and systems.

An opening ceremony conducted by the Secretary of State marked the completion of five years of development and £50 million of investment by MBDA. The new Bolton site is where a number of key mis-

siles are being produced for the UK Armed Forces, delivering operational sovereignty and freedom of action to the UK. These systems include Brimstone, ASRAAM, CAMM (Sea Ceptor and Land Ceptor), SPEAR, and Meteor which has its final assembly for all six European partner nations carried out at MBDA Bolton. The site will also play a key role in exports, underpinning the UK Government's Prosperity Agenda.

"This £50m factory supports 700 jobs in Bolton, showing how central strong British defence industry is to our national prosperity," said Williamson at the ceremony. "MBDA's investment has created more than 100 new jobs, and this has been supported by a £400m contract from the Government helping to create a further 100 roles within the company. You can't have prosperity without security. MBDA in Bolton is keeping Britain safe while creating highly-skilled jobs and opportunities, demonstrating our commitment to the people of Bolton and the North West."

[www.mbdasystems.com](http://www.mbdasystems.com)



(Photo: MBDA)

### MS&D – International Conference on Maritime Security and Defence

In its 10<sup>th</sup> year of existence, MS&D – the international conference on maritime security and defence – will attract more attention than ever. During the extended two-day conference, speakers and lecturers will address pressing topics – including cybersecurity, climate change and naval technology. Be part of it and seize the opportunity to get together with high ranking global delegations.

**September 6-7, Hamburg, Germany**



### XV INTERNATIONAL SPECIALIZED EXHIBITION ARMS AND SECURITY

In recent years, the Ukrainian security and defence sector has gained invaluable experience whilst also actively engaging new technologies developed by its international partners. International Exhibition “Arms and Security” is a large-scale multi-domain exhibition for defence, homeland security, emergency and civil protection services. The exhibition is held according to a decree of the Cabinet of Ministers of Ukraine which guarantees the presence of Ukrainian top leaders and a high level of international audience.

**October 9-12, Kyiv, Ukraine**



### FUTURE FORCES FORUM

International exhibition and expert events on the latest trends and technologies in defence and security. All events are focused on the presentation of needs of armed and security forces, state-of-the-art technologies, R&D programmes, and business opportunities, with interactions between all participants due to the interconnected topics. Government, international organisations, industry, R&D institutions meet at one place. NATO and the European Defence Agency are involved in shaping the programme.

**17 - 19 October, Prague, Czech Republic**



### TechNet Europe 2018

The two-day conference organised by AFCEA Europe in cooperation with the AFCEA Rome and Naples chapters, will be held under the patronage of the Ministry of Defence, Italy. Representatives from some of the highest levels of the European and NATO institutional, academic and industrial world will discuss the current situation, challenges and the various prospects of Maritime Situational Awareness with particular emphasis on interoperability.

**November 6-7, Sorrento, Italy**



### NIDV-Symposium – 30<sup>th</sup> edition

During the NIDV-Symposium and exhibition, more than 130 companies show their potential. The top political level of the Ministries of Defence, Economic Affairs, Foreign Affairs and Security & Justice are invited. A special programme for the military attachés accredited in the Netherlands is offered. Sister organizations of the NIDV from abroad are also invited. And last but not least, representatives of the armed forces, the police, the fire brigade, the ambulance dispatch center, the coast guard and other public security organizations are present.

**November 15, Rotterdam, The Netherlands**



### I/ITSEC

The Interservice/Industry Training, Simulation and Education Conference (I/ITSEC) is the world’s largest modeling, simulation and training conference. It consists of peer-reviewed paper presentations, tutorials, special events, professional workshops, a commercial exhibit hall, a serious games competition, and STEM events for teachers and secondary students. I/ITSEC is organized by the National Training and Simulation Association (NTSA).

**November 26-30, Orlando, USA**

